2015

Standardized Articulation Test Performance of African American Preschoolers in Mississippi

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STANDARDIZED ARTICULATION TEST PERFORMANCE OF AFRICAN AMERICAN PRESCHOOLERS IN MISSISSIPPI

by
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A thesis submitted to the faculty of The University of Mississippi in partial fulfillment of the requirements of the Sally McDonnell Barksdale Honors College.

Oxford
May 2015

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ACKNOWLEDGEMENTS

First, I would like to thank my research advisor, Dr. Ivy. She has offered tireless support and guidance throughout each different and challenging phase of this project. She served as the ideal mentor while helping me brainstorm and implement a plan of action, then handing the reins to me and allowing me to explore, make mistakes, and ultimately learn. I will never be able to express my gratitude to her for introducing me to research in a positive way, and pushing me to continue this project in the future.

As with any endeavor I have taken on in my life, I attribute a significant amount of my success to my family. Mom and dad, you have been irreplaceable resources whether taking time to offer a listening ear or reading my endless thesis drafts, even though you initially had little knowledge and interest in the subject. Your love and support does not go unnoticed.

Finally, I would like to thank the faculty, staff, and students at Leaner's Playhouse Preschool. You offered such a warm and welcoming environment, and I cannot thank you enough for jumping so enthusiastically on board with my project. Your students are bright, shining stars and without them, none of this would have been possible.

ABSTRACT

EMILY ANN ORTEGA: Standardized Articulation Test Performance of African American Preschoolers in Mississippi.
(Under the direction of Dr. Lennette J. Ivy)

In the past, standardized articulation tests administered by speech-language pathologists (SLPs) have had tendencies to be biased against speakers of a dialect with characteristics that differ from Mainstream American English (MAE). Using these MAE norm referenced tests can cause several problems, including over diagnosing African American (AA) children with impaired speech and language. The purpose of this study is to document the performance of four-year-old African American English (AAE) speakers for their use of age appropriate phonemes regardless of dialect, and whether the presence of AAE affects participants' scores on the following articulation tests: the Arizona Articulation Proficiency Scale-Third Edition (Arizona-3) and the Photo Articulation Test-Third Edition (PAT-3). The current study included 21 four-year-old AA participants enrolled at Learner's Playhouse Preschool in Oxford, Mississippi. Part I of the Diagnostic Evaluation of Language Variation- Screening Test (DELV-ST) was used to identify the participants as speakers of the AAE dialect, and the Arizona-3 and PAT-3 were administered to compare the results to those found in Lafayette County, Mississippi almost 25 years ago by Cole and Taylor (1990), as well as Washington and Craig (1992) in Michigan. The findings corresponded with Cole and Taylor's results, indicating that less AA children score below average when the Arizona-3 and PAT-3 articulation tests are re-scored using a new dialect sensitive scoring key, taking AAE dialectal characterisitics into consideration. This information resonates the importance that those

working with AA children in educational or therapy settings understand the fundamental features of AAE to ensure these children are evaluated without test or clinician bias.

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LIST OF ABBREVIATIONS

AA	African American
AAE	African American English
AAPS	Arizona Articulation Proficiency Scale: Revised
Arizona-3	Arizona Articulation Proficiency Scale-Third Edition
ASHA	American Speech-Language-Hearing Association
DELV-ST	Diagnostic Evaluation of Language Variation –Screening Test
DELV-NR	Diagnostic Evaluation of Language Variation- Norm Referenced
DS	Dialect Sensitive
MAE	Mainstream American English
NCES	National Center for Educational Statistics
PAT	Photo Articulation Test
PAT-3	Photo Articulation Test-Third Edition
SES	Socioeconomic Status
SLP	Speech-language pathologist
SWE	Southern White English

CHAPTER I

Introduction

Research in the field of communicative disorders has been primarily focused on collecting normative data for the development of speech sounds in Mainstream American English (MAE) in past decades. This research is vital because MAE encompasses speech considered acceptable across all geographic regions in the United States. It is spoken in most professional settings, such as the workplace, and represented in the education system, as well as formal writing (Mitri & Terry, 2013). Speakers of MAE represent the majority of the population in the United States: White, middle class. These developmental norms have been meticulously documented and used to produce standardized tests for clinicians to administer to accurately diagnose speech and language disorders in specific populations and streamline the diagnostic process. Less of the initial evaluation is left up to the speech language pathologist's (SLPs) interpretation, and more of the data can be compared to concrete norms in order to increase the reliability and validity of the diagnosis (Laing & Kamhi, 2003). However, limited research has been conducted to study characteristics of other dialects, such as African American English (AAE), to ensure that these children are properly diagnosed, regardless of any dialectal variations from MAE. (Bland-Stewart, 2003; Peña-Brooks & Hegde, 2007).

According to the American Speech-Language-Hearing Association's (ASHA) position statement released in 1983, dialects were officially recognized as rule-governed

varieties of English. They stand as a representation of the speaker's historical, social and cultural background and should not be mistaken for speech or language disorders as they maintain their own grammatical features and structural elements (ASHA, 1983). This stance has helped shift the paradigm from disorder to dialect, dramatically changing views regarding AAE.

Current demographics show that minority populations (African American, Latino American, Asian American, and Native American) in the United States are on the rise, increasing the number of minority children enrolled in public schools (Davis & Bauman, 2011; Fry, 2007). More specific to Mississippi, according to the National Center for Educational Statistics (NCES), in 2011 53% of children enrolled in prekindergarten through 12th grade public schools in the south were members of a minority race (National Center for Educational Statistics, 2011). In 2004, Seymour found that minority children, especially those speaking AAE, were overrepresented in special education and remedial courses, and over diagnosed with disordered speech, mental retardation, autism, or other learning disabilities landing them in special education programs (Seymour, 2004).

As of 2013, 71% of SLPs were Caucasian American while only 27% were African American (ASHA, 2013). A large number of Caucasian SLPs work in schools, and may come in contact with children who speak a dialect they are not adequately familiar with. This lack of AAE speaking SLPs may be contributing to the over-inclusion of AA students on SLPs caseloads in schools. It is evident that Caucasian SLPs are less familiar with the dialect, and mistake dialectal characteristics straying from MAE as disordered speech (Robinson & Stockman, 2009).

Many leading researchers in communicative disorders have recognized a lack of normative data representing the development of AAE speech in children and have expressed a need for further exploration (Bland-Stewart, 2003; Craig, Thompson, Washington, & Potter, 2003; Hinton & Pollock, 2000; Pearson, Velleman, Bryant, & Charko, 2009; Seymour, 2004; Stockman 1996; Stockman 2006; Stockman, 2010). To date, research has mainly focused on differences in AAE and MAE speaker's standardized test scores or contrastive features of the two dialects, not the range of normal variability among AAE speakers (Pearson et al. 2009). The goal of this research is to document AAE speaking children's performances on two different standardized articulation tests so that SLPs can use the findings to help them better assess AAE speaking children. It is crucial that all SLPs are properly educated and able to identify characteristics of AAE, choose appropriate, dialect sensitive standardized tests, and understand how to accurately distinguish atypical AAE speech.

CHAPTER II

Literature Review

The current review discusses the importance of accepting African American English (AAE) as a proper, rule-governed dialect and not a disorder. By studying its history and acknowledging the recent research efforts made to identify key characteristics in developing AAE speech in children, those who interact with African American (AA) children will be better prepared to make appropriate referrals and diagnose speech impairments accurately across all populations.

History of AAE

It is widely accepted that African languages were brought to the United States through the slave trade as early as the 17th century (Dillard, 1972). The Black slave community quickly began meshing their native African languages with English as a means to communicate with their slave owners, who spoke Plantation Creole. Plantation Creole was initially spoken by wealthy plantation owners, but eventually spread throughout the entire south and led to the creation of the Southern White English (SWE) dialect used in the southeast region of the United States today. Early Plantation Creole had substantial influences on the evolution of AAE; both dialects evolved simultaneously over centuries, but have maintained their own specific set of characteristics.

Although AAE had been defined by ASHA as a dialect in 1983 and accepted as such by most SLPs and Linguists, educators and parents had their own opinions. In 1996,

the School Board of the Oakland Unified School District in California defined the AAE dialect as “Ebonics”, treating it as an entirely separate language from English and requested federal funding for an Ebonics bilingual program (Baron, 2000). The intentions were to boost AA success at school after gathering grim statistics: AA students represented 53% of the student body, yet were most likely to repeat a grade or not graduate, receive punishment for poor behavior, and maintain the lowest GPA (Baron, 2000). This request angered citizens, students and AA leaders nationwide, threatening the progress made by the United States to accept AAE as a rule governed dialect.

Many members of the AA community disapproved classifying AAE as a distinct language, arguing that treating Ebonics as its own language would discourage children from dialect shifting to MAE in appropriate settings. James Meredith, the first man to integrate the University of Mississippi, criticized this decision and began his own institution to teach young AA men the importance of dialect shifting to MAE and its correlation to academic success (Baron, 2000, “Schools will teach”, 2007). The Oakland School Board was forced to retract their initial statement and more modestly defined Ebonics as an evolution from African languages, not a language entirely separate from English.

Characteristics of the AAE Dialect

Linguistic features contrasting AAE from MAE are mainly phonological and morphological in nature (Apel & Thomas-Tate, 2009; Bailey & Thomas, 1998; Craig et al., 2009; Green, 2002; Ivy & Masterson, 2011; Rickford, 1999; Stockman; 1996). Examples of morphological differences include the absence of verb inflections such as “-s possessive”, “-s third person singular”, and “-ed past tense” (Stockman, 1996).

Although both areas show variation, AAE phonological patterns seem to provide a more perceivable difference than grammatical patterns in children (Craig et al., 2003; Stockman, 2008;). Studies have proposed that AAE speaking children begin to acquire the dialect's characteristics as young as age three (Stockman, 1993).

Regional variation in Mainstream American English (MAE) across the country is common; a man from Boston is not expected to sound identical to a man from Mississippi although they speak the same language and dialect. Similarly, the rules of AAE are neither concrete nor evident in every AAE speaker; language is dynamic and therefore the AAE dialect can vary depending on SES, gender, and geographical location (Mitri & Terry, 2013; Oetting & Garrity, 2006; Stockman, 2010; Washington & Craig, 1998). Despite these recognized differences, AAE remains a super-regional dialect, following a general rule governed system (Mitri & Terry, 2013). The universality of the dialect can be accredited to the migration of AAs throughout history. At the time of the civil war, 91% of the AA population resided in the south. But as the 18th century progressed, AAs migrated north (Cole, 1989). As a result, speech used by AAs residing in northern cities is similar to patterns found in the south because they essentially speak a 'transplanted southern dialect' (Myhill, 1988). The few differences in northern and southern AAE speaker's dialect seem to be contingent on the amount of integration into the White community, possibly affecting vowel production and the extent of grammatical variances (Hinton & Pollock, 2000). Regardless of these minor differences, a complete list of widely accepted phonological characteristics of AAE can be found below in Table 1.

Table 1. Phonological Characteristics of AAE

AAE Feature	MAE production	AAE Counterpart
Final "l" and final "r" sound lessened/omitted	tool door	Too' doah
Voiceless "th" is replaced by "t" in the beginning of words and "f" at the end or in the middle of words	thin teeth both	tin teef bof
Voiced "th" is replaced by "d" in the beginning or in the middle of words and "v" at the end of words	this breathe	dis breave
Consonant clusters are reduced at the beginning and end of words	throw desk rest	thow des' res
Consonants within clusters are replaced by other consonants	shred strike	sred skrik
Different stress patterns	gui**tar**	**gui**tar
Some sounds within a word are reversed in order	ask	aks
Devoicing final consonants	bed	bet
Final consonants are deleted	bad	ba'
"e" vowel is replaced by "i"	pen	pin
"v" sound replaced by "b"	valentine	balentine
Diphthongs are reduced	find oil	fahnd ol
lax vowels produced as tense vowels	fish	feesh
"ng" replaced by n	walking	walkin
Unstressed syllables are omitted	about remember	'bout 'member

Sources: Craig, H. K., Thompson, C. A., Washington, J. A., & Potter, S. L. (2003). Phonological features of child African American English. *Journal of Speech, Language & Hearing Research, 46*(3), 623-635.

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Pollock, Bailey, Berni, Fletcher, Hinton, Johnson, Roberts, & Weaver (2001, March 17) *Phonological Features of African American Vernacular English (AAVE).* Retrieved from http://www.rehabmed.ualberta.ca/spa/phonology/features.htm

The Black-White Achievement Gap in the Classroom and Solutions to Overcome the Disparity

National data reveals that White students outperform AA students academically beginning in kindergarten and continuing throughout high school (Apel & Thomas-Tate, 2009; Connor & Craig, 2006; Jencks & Phillips, 1998; Singham, 2005). This occurrence is known as the Black-White achievement gap, and has been diligently studied since its initial discovery in the early 1970's. According to Singham (2005), when compared to Caucasian students, AA students score significantly below their counterparts academically, while 78% of White students graduate high school compared to only 56% of AA students.

Research has found both intrinsic and extrinsic factors at the root of this problem. Extrinsic factors include prejudice dynamics, lowered expectations from teachers for AA students, inappropriate testing procedures, unequal education opportunities, lack of school resources, SES, cultural differences, geographic location, parental education level and single mother families (Harris & Schroeder, 2013; Jencks & Phillips, 1998; Terry, Connor, Thomas-Tate, & Love, 2010; Thompson, Craig, & Washington, 2004). Many of these extrinsic influences affect the mindset of children who grow up speaking AAE (Yvette & Schroeder, 2013). One theory proposes that when AAE speaking children notice that other students and teachers speak differently than their family and community, common reactions include feelings of lowered self worth which can negatively affect attitudes toward learning and school (Bialystok, 2001).

Although these extrinsic factors are important, intrinsic factors are more likely to predict whether AAE speakers find academic success. A possible intrinsic factor involves

mismatches when children first learn sound correspondences between letters and their oral counterpart due to differences between AAE speech and print written in MAE, also known as the linguistic mismatch theory (Charity, Scarborough, & Griffin, 2004; Craig & Washington, 2004; Mitri & Terry, 2013; Pearson et al. 2009; Terry et al. 2010). This hypothesis may explain the challenges AAE speaking children face with mastering phonological awareness skills, possibly slowing reading progress and leading to a downfall in motivation and a negative attitude toward literacy (Charity, Scarborough, Griffin, 2004; Labov, 1995; Mitri & Terry, 2013; Terry et al. 2010).

To counteract the linguistic mismatch theory, researchers have proposed that AAE speakers innately develop skills to dialect shift. Most studies have shown evidence that children begin dialect shifting in the first grade, but some suggest children recognize appropriate contexts in which to dialect shift as early as preschool (Connor & Craig, 2006; Craig & Washington, 2004; Pearson et al. 2009; Thompson, Craig & Washington, 2004). Craig and Washington (2004) noticed a decline in grammatical features of the AAE dialect around the first grade, equating to higher reading and vocabulary achievement in those students. Craig, Zhang, Hensel, and Quinn (2009) found that students' using AAE features in writing obtained lower reading scores, compared to those students who were merely speakers of AAE. These findings suggest that the ability to dialect shift has a positive effect on reading development and that linguistically advanced AA students are more likely to possess the skills to dialect shift (Craig & Washington, 2004; Craig et al. 2009; Craig, Kolenic, & Hensel, 2014).

To clarify, speaking AAE is not the main concern, nor the only predictor of a student's academic success. However, failing to switch to MAE in the school

environment is linked to lower test scores and a decreased understanding of literacy skills (Charity, Scarborough, & Griffin, 2004; Connor & Craig, 2006; Craig, Kolenic, Hensel, 2014; Ivy & Masterson, 2011). The main point in all these studies is that the Black-White achievement gap exists, and research has shown the importance of developing the ability to dialect shift in the classroom to overcome the linguistic mismatch theory. Current research suggests that skills necessary to dialect shift are learned by the individual on their own time, or sometimes not at all, and may depend on context or setting (Connor & Craig, 2006; Craig, Kolenic, & Hensel, 2014). The goal of future studies is to develop programs to help teachers and educators understand the literary significance of dialect shifting, and aid students in jump starting this progress (Craig, Kolenic, & Hensel, 2014).

Past Research Regarding Standardized Articulation Test Performance of AAE Speakers

As discussed earlier, phonological development in young children can be an accurate precursor to the development of verbal language abilities and future success with learning (Bland-Stewart, 2003). In her pilot study, Bland-Stewart found that AAE speaking two-year-olds in Massachusetts acquired and used the same phonemes and phonological processes as their MAE speaking counterparts (2003). The patterns in use by the AAE speaking toddlers were characteristic of adult AAE speech, but evidence is not yet strong enough to show this is indicative of early dialect development rather than typical pattern development regardless of dialect. The implications of this study are valuable, proposing that clinicians should assess all two-year-olds in the same manner, regardless of dialect.

However, as children grow and their language development continues to progress, standardized tests become appropriate evaluation options. In 1990, Cole and Taylor

carried out a study questioning the validity of current articulatory assessment procedures. They chose 5 male and 5 female AA participants in the first grade from Lafayette County, Mississippi, the county encompassing Oxford, Mississippi. The children were administered 3 standardized articulation tests: the *Arizona Articulation Proficiency Scale: Revised* (Fudula, 1974), the *Photo Articulation Test* (Pendergast, Dickey, Selman, & Sorder, 1969), and the *Templin Darley Tests of Articulation- Second Edition* (Templin & Darley, 1969). Their goal was to determine how many items on each test allowed both MAE and AAE features to be considered "normal", and if this number correlated to the number of AA children whose speech was considered disordered based on that assessment. Findings supplemented earlier research proposing that AA children perform differently than their White peers on standardized tests, thus requiring their own set of normative data (Cole & Taylor, 1990).

Cole and Taylor discovered that seven of the ten participants were identified as articulation impaired according to the *Arizona Articulation Proficiency Scale: Revised* (AAPS), three according to the *Photo Articulation Test* (PAT), and six on the *Templin-Darley Tests of Articulation* (Templin-Darley). When the tests were re-scored with AA dialectal tendencies factored in, no children were considered articulation impaired on the AAPS, one on the PAT, and two on the Templin-Darley.

In 1992, Washington and Craig replicated Cole and Taylor's study in Detroit, Michigan with 28 four and five year old AA children and found different results. Using only the AAPS- Second Edition instead of the Revised edition used by Cole and Taylor, they found that the results were the same whether dialect was taken into consideration or not. They noted the only difference between the Revised Edition and updated Second

Edition of the AAPS was the inclusion of the "mild" severity rating category to the "normal", "moderate" and "severe" severity categories provided on the Revised Edition.

Washington and Craig attributed their different findings to the inclusion of SWE characteristics in the speech of the Mississippi children, whereas these characteristics were absent in the children in their study in Michigan. The SWE dialect differs from true MAE mainly in the production of vowels (Andres & Votta, 2010; Kretzschmar, 2008). The implications suggested by Washington and Craig observe the role regional dialects can have on articulation and phonology testing, creating a stronger case for utilizing a large pool of participants from around the country to form the normative data for articulation tests.

In the almost 25 years since Cole and Taylor conducted their research, efforts have been made to improve the manner in which SLPs assess children speaking dialects other than MAE. As Laing and Kamhi (2003) point out, the content of standardized tests (such as the pictures) can be biased, the test can be biased against certain linguistic patterns of speech, and the representative sample may not accurately include all populations.

Over the years, attempts have been made to produce a standardized articulation test with AAE clients in mind. The first test to show promise was the Diagnostic Evaluation of Language Variation, created by Seymour, Roeper, and de Villiers in 2003 (de Villiers, de Villiers, Roeper, Seymour, & Pearson, 2003; Oetting, Lee, & Porter, 2013; Stockman, 2010; Stockman, Guillory, Seibert, & Boult, 2013). The test includes three separate evaluation tools, including the dialect screener, criterion-referenced test, and a norm-referenced test (de Villiers, de Villiers, Roeper, Seymour, & Pearson, 2003). The authors

assert that the tests can be administered to both AAE and MAE speakers and yield accurate results. The dialect screener series on the test is split into two parts: Part I is used to determine the speaker's level of variation from MAE, while Part II measures the child's diagnostic risk status, examining their understanding of certain verb usage, *wh*-questions, and short-term memory.

Purpose of this Study

The need for normative data documenting phoneme development in typically developing AAE speaking children is great, especially in Mississippi. The data gathered locally in Lafayette County by Cole and Taylor is now 24 years old and in need of re-evaluation. Studies have been carried out in Memphis and areas in Louisiana, but data is extremely lacking in other Deep South states including Mississippi, Georgia, and Alabama. Although general characteristics of AAE are similar nationwide, the amount of immersion into White culture could potentially affect dialect density (Hinton & Pollock, 2000; Stockman, 2008). Multiple studies (Bland-Stewart, 2003; Craig et al., 2003; Stockman, 2010; Washington & Craig, 1992) have been conducted in the northern states such as Minnesota and Michigan, but collecting more data from the south could help identify small variances in AAE due to location, as well as the possible effects of the SWE dialect.

Past studies tend to focus on differences in AAE and MAE speakers standardized test scores or contrastive features of the two dialects, not the range of normal variability among AAE speakers (Pearson et al. 2009). Instead of searching for the many ways AAE contrasts from MAE, AAE should be studied as a separate entity. The purpose of the current study is to evaluate emerging language of four-year-old AAE speakers for their

use of age appropriate phonemes and phonological processes regardless of dialect, and to determine if the presence of AAE affects participants' scores on the Arizona Articulation Proficiency Scale-Third Edition (Arizona-3) and the Photo Articulation Test-Third Edition (PAT-3). The Templin-Darley was not used. The experiment also served as a replication of Cole and Taylor's study of AA first graders in Lafayette County, Mississippi in 1990, as well as Washington and Craig's study in 1992.

Now two decades after Cole and Taylor and Washington and Craig's research, this study hoped to find valid scores on the Arizona-3 and the PAT-3, regardless of the speaker's dialect. The present study was conducted in the same geographical location as Cole and Taylor, and addressed the following research questions for four-year-old AA preschool children:

1. Are the phonetic inventories of four-year-old AAE speaking preschoolers in north Mississippi consistent with the developmental norms reported on the Arizona-3 and the PAT-3?
2. Are the participants' scores similar on the Arizona-3 and PAT-3 when AAE is taken into consideration when scoring the tests, and when AAE is not considered?
3. How do the results from the Arizona-3 and PAT-3 of the current study compare to the results from Cole and Taylor's study (1990)?
4. Are the pictures from the Arizona-3 and PAT-3 biased against four-year-old AA children?

CHAPTER III

Methodology

Participants

Twenty-one African American (AA) preschool children, fifteen male and six female, ranging in age from 4:0-4:11 participated in this study. All participants were enrolled in Learner's Playhouse Preschool in Oxford, Mississippi. All of the teachers and staff employed at Learner's Playhouse were AA and were perceived to speak AAE, so the children were not yet exposed to speech that may prompt dialect shifting in an academic environment. Before the study began, prospective participants' parents were shown a brief video describing the study and given an informational flyer. Parental consent forms, including a parent questionnaire, were obtained from the parents of the qualified children. The inclusion criteria were that the child be enrolled in preschool within the ages of 4:0 and 4:11, and speak the AAE dialect. The participants were considered typically developing based on reports from teachers and caregivers, and classified as speakers of the AAE dialect based on results from Part I of the Diagnostic Evaluation of Language Variance- Screening Test (DELV-ST). None of the participants were previously referred for clinical speech services.

Although the parent questionnaire did not inquire about each family's annual income, socioeconomic status (SES) was reported based on job descriptions provided by the parents. Fifty seven percent of participants' parents identified as single mothers. All

parents in this category held at least a high school education, while the majority had a partial college education. The most common occupation for this group included teachers, nurses, or jobs in the food industry. Forty three percent of the participants' parents reported they were married. All parents from this group had at least a high school education, with the majority of mothers and fathers holding either partial or complete college degrees. Most married mothers were employed as nurses, while most married fathers were employed as truck drivers or other machine operators or deliverymen. Generalizing the reports summarized above, the participant's families were assumed to be in the low to lower middle class SES.

Instrumentation

The materials used for this study included a Personal Information Questionnaire regarding the SES of each participant's family, adapted from Hollingshead Four Factor Index (Hollingshead, 1975). A dialect screener and two articulation tests were administered to obtain data from the four-year-old participants. The assessment instruments used are as follows:

- *The Diagnostic Evaluation of Language Variance- Screening Test*. (DELV-ST: Seymour, Roeper, de Villiers, & de Villiers; 2003).

  Part I of the DELV- ST is appropriate for children four to 12 years of age and takes 15-20 minutes to administer. The goal of the assessment was to determine the speaker's level of variation from Mainstream American English (MAE). The results from Part I of the DELV-ST help speech-language pathologists (SLPs) to distinguish speech and language variations from disorders or delays based on regional and cultural language differences.

- *The Arizona Articulation Proficiency Scale-Third Edition*. (Arizona-3: Fudula; 2000).

  The Arizona-3 is appropriate for children ages one and a half to 18 and takes three to five minutes to administer. The articulation test utilizes 42 line drawings to elicit all major speech sounds in the English language, including consonants, blends, vowels, and diphthongs in the initial and final word positions. The goal of the assessment was to identify misarticulations and identify children who may be in need of further speech or language assessment.

- *The Photo Articulation Test-Third Edition*. (PAT-3: Lippke, Dickey, Selmar & Soder; 1997).

  The PAT-3 is appropriate for children ages three to 18 and takes 10-15 minutes to administer. The articulation test uses 72 color photographs to evaluate spontaneous productions of all major speech sounds in the English language in the initial, medial, and final word positions. The goal of the assessment was to identify misarticulations and identify children who may be in need of further speech or language assessment.

In addition, a laptop and a digital camera were utilized to record sessions. The iDVD program was used to turn the footage into a DVD for later review.

Procedure

In order to conduct this study, approval was received from the Institutional Review Board at the University of Mississippi (Protocol #14-051), which can be found in Appendix A. A signed consent form was obtained from each participant's parents as well as the Personal Information Questionnaire regarding SES, which can be found in

Appendices B and C. Participants were seen individually to complete the Part I of DELV-ST, Arizona-3, and PAT-3 in a secluded, quiet part of the classroom during their school day at Learner's Playhouse Preschool. In an effort not to disrupt the children's instruction time, the participants were seen during naptime. The tests were counterbalanced to ensure order of delivery did not affect participants' performance. For clarification, participant 1 was administered Part I of the DELV-ST first, then the PAT-3, and finally the Arizona-3. Participant 2 was administered the PAT-3 first, then the Arizona-3, and last Part I of the DELV-ST, and so on. Fifteen minutes were allotted to administer Part I of the DELV-ST, fifteen minutes to administer the PAT-3, and eight minutes to administer the Arizona-3. Since results from Part I of the DELV-ST were criteria to participate in the study, participant's data was excluded from the study if they had not met the minimum score requirement. However, all of the participants met the score criteria on Part I of DELV-ST to determine their speech as characteristic of the AAE dialect. The session was videotaped on either a laptop or a digital camera, and the footage was then burned to a DVD for later review. Each participant completed all three tests in one sitting, with the exception of participant 5 and participant 8, due to technical difficulties with the recording device.

The script of procedural instructions that were verbally delivered to each participant was as follows:

> Hi, my name is Emily. Today I'm going to ask you some questions about pictures. We will be working with 3 different tests. (The following instructions were taken directly from the test manuals):

DELV-ST:

- Trial Item A: Most people think that talking is fun. Today, I'm going to give you a test about talking that has been made for children just like you. Lots of the pictures I'm going to show you and stories I'm going to tell you are about children or people just like you. Some of the test is for older children and may be hard for you. Some of the test is for younger children and may be easy for you. Sometimes I'll say things that are funny or hard to understand, but most of the time you'll be able to figure out the answer because it's easy. When we finish this test tell me how you liked it. Let's begin!
- Trial Item B: Next, I'm going to show you some pictures and tell you what I see. Then I want you to say exactly what I said. Let's try one. Say, "I see a man." *If the child imitates the sentence exactly, say*: "Good, let's do some more." *If a child does not imitate the sentence exactly, say:* "Let's try that again. Say what I say. I see a man. Now you say it. "

Arizona-3

- I am going to show you some pictures. As I show you each picture, please tell me what it is.

PAT-3

- I am going to show you some pictures. I will point to each picture one at a time and ask you, "What is this?" *If the child does not name the picture correctly, ask,* "What else could you call this?" *If child cannot come up with desired word, say,* "Please say____".

Part I of the DELV-ST was scored first to verify the participants as speakers of AAE. Then, the Arizona-3 and the PAT-3 were scored according to the instructions in their respective manuals, and the participant's articulation abilities were classified as typical, delayed or impaired based on each tests severity rating. A new scoring key was created for both the Arizona-3 and the PAT-3 to include phoneme pronunciations in accordance with the AAE dialect and the tests were re-scored. Tables 3a and 3b below show the new scoring keys created. The participant's speech was re-analyzed and the two scores were compared to classify the tests as either dialect sensitive or biased against AAE speaking children.

Table 2a. Items Re-scored in Accordance with AAE Dialectal Rules on the Arizona-3

Item Number	Item Photograph	AAE Production	AAE Characteristic Definition	MAE production
Arizona-3				
4.	*bathtub	/-ʌ/	final consonant deletion	/-b/
6.	cup	/-ʌ/	final consonant deletion	/-p/
8.	train	/-ei/	final consonant deletion	/-n/
13.	comb	/-oʊ/	final consonant deletion	/-m/
15.	cake	/-ei/	final consonant deletion	/-k/
21.	*dog	/-a/	final consonant deletion	/-g/
24.	red	/-ɛ/	final consonant deletion	/-d/
25.	cat	/-æ/	final consonant deletion	/-t/
27.	jumping	/-n/	"ng" is replaced by "n"	/-ŋ/
30.	fish	/-i-/	lax vowels are produced as tense vowels	/-I-/
32.	television/TV	/b/	"v" sound replaced by "b"	/v/
33.	stove	/-b/ or omitted	"v" sound replaced by "b" or final consonant deletion	/-v/
35.	*ladder	/-ə/	final "r" deletion	/-ə˞/
36.	ball	/-ɑw/	final consonant deletion	/-l/
39.	*cold	/-oʊl/	reduction of consonant clusters	/-ld/
40.	bird	/-ɛ/	deletion of vocalic "r"	/-ɝ/
45.	*car	/-ɑ/	final "r" deletion	/-ar/
46.	ear	/-Iə/	final "r" deletion	/-ɛr/
50.	*this/that	/d-/	voiced "th" replaced by "d" in the beginning of words	/ð-/
52.	chair	/-ɛʊ/	final "r" deletion following vowels	/-ɛə˞/
56.	thumb	/t-/	voiceless "th" replaced by "t" at the beginning of words	/θ-/
57.	*mouth/teeth	/-f/	voiceless "th" replaced by "f" at the end of words	/-θ/
59.	nose	/-s/	devoicing final consonant	/-z/
64.	nest	/-s/	reduction of consonant clusters	/-st/
65.	*carrots	/-t/	reduction of consonant clusters	/-ts/
67.	*books	/-k/	reduction of consonant clusters	/-ks/

***** Denotes items also chosen for re-score in Cole & Taylor's study (1990)

Table 2b. Items Re-scored in Accordance with AAE Dialectal Rules on the PAT-3

Item Number	Item Photograph	AAE Production	AAE Characteristic Definition	MAE production
PAT-3				
1.	pie	/a/	diphthong reduction	/aI/
3.	cup	/-ʌ/	final consonant deletion	/-d/
6.	comb	/-oʊ/	final consonant deletion	/-m/
12.	*bathtub	/-ə/	inal consonant deletion	/-b/
15.	*bed	/-ɛ/	final consonant deletion	/-d/
18.	can	/-æ/	final consonant deletion	/-n/
21.	cake	/-ei/	final consonant deletion	/-k/
27.	hat	/-æ/	final consonant deletion	/-t/
35.	orange	/-ʧ/	devoicing final consonant	/-ʤ/
41.	bell	/-ɛʊ/	final consonant deletion	/-l/
N/A	no picture; clinician models by asking, "please say 'beige'"	/-ʃ/	devoicing final consonant	/-ʒ/
42.	vacuum	/b-/	"v" sound replaced by "b"	/v-/
43.	TV	/-b/	"v" sound replaced by "b"	/-v/
44.	glove	/-b/ or /-ʌ/	"v" sound replaced by "b" or final consonant deletion	/-v/
56.	keys	/-s/	devoicing final consonant	/-z/
60.	*this/that	/d-/	voiced "th" replaced by "d" in the beginning of words	/ð-/
60.	*feathers	/-d-/	voiced "th" replaced by "d" in the middle of words	/-ð-/
N/A	no picture; clinician models by asking, "please say 'bathe'"	/-v/	voiced "th" replaced by "v" at the end of words	/ð-/
64.	thumb	/t-/	voiceless "th" replaced by "t" at the beginning of words	/θ/
65.	*toothbrush	/-f-/ or omitted	voiceless "th" replaced by "f" in the middle of words, or unstressed syllable deleted	/θ/
66.	*teeth	/-f/	voiceless "th" replaced by "f" at the end of words	/θ/
69.	*car	/-ɑ/	final "r" deletion	/-aɚ/
70.	*boy	/-oə/	diphthong reduction	/ɔI/
71.	*bird	/-ɛ/	deletion of vocalic "r"	/-ɝ/

***** Denotes items also chosen for re-score in Cole & Taylor's study (1990)

CHAPTER IV

Results

Language Variation Results

Part I of the DELV-ST was administered to participants to provide a definitive means to classify participants' speech as representative of the AAE dialect. According to the test manual, examiners were asked to mark participant's responses to each item in one of four columns: A, B, C, or D. A response was marked in column A if the child's word or sentence production was in accordance with AAE, and marked in column B if the child's response was in accordance with MAE. Column C was identified as "other", and available for responses that neither fit AAE nor MAE patterns. Lastly, column D was reserved for instances when the child gave no response. Out of 15 possible items, a score of nine or more responses in column A classified speech as strongly varied from MAE. All 21 participants had at least nine responses in column A, indicating their speech strongly varied from MAE. Each participant's score from Part I of the DELV-ST are depicted in Table 2.

Test Items Biased Against Speakers of AAE

The Arizona-3 contains a total of 26 out of 67 (39%) items that could be produced differently in AAE compared to MAE, and therefore may be biased against speakers of AAE. The PAT-3 contains a total of 24 out of 75 (32%) items that could be produced differently in AAE compared to MAE. These potentially biased items were not counted

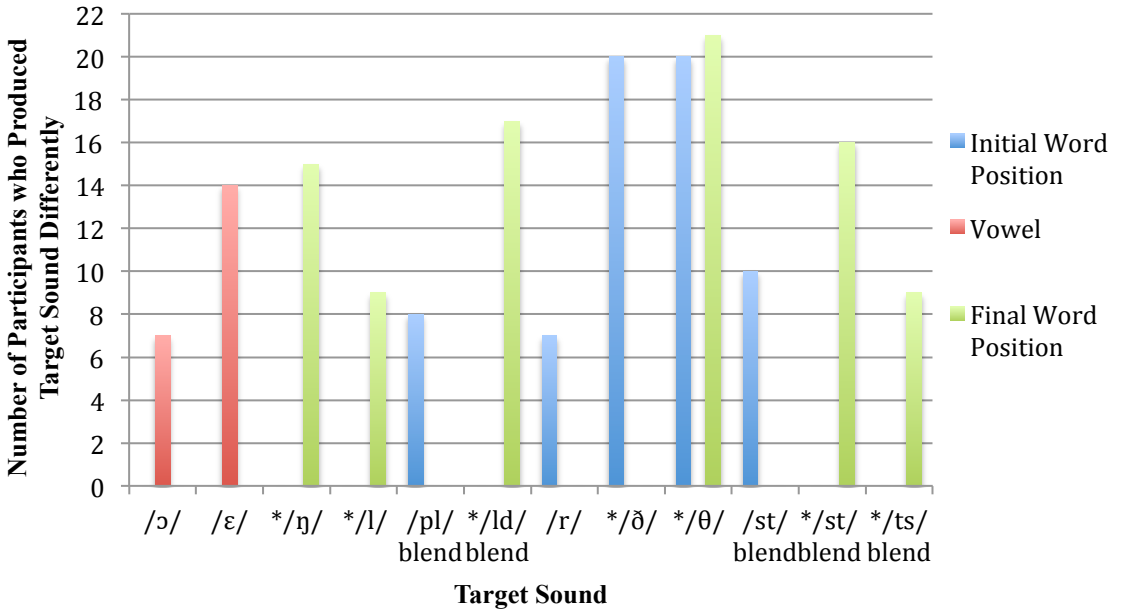
Table 3. DELV-ST Scores from Part I

Participant	A (Response varied from MAE production)	B (Response in accordance with MAE production)	C or D (Other or No response)
1	12	0	3
2	11	3	1
3	11	0	4
4	9	0	6
5	9	0	6
6	12	0	3
7	10	0	5
8	14	0	1
9	15	0	0
10	10	1	4
11	12	0	3
12	13	1	1
13	13	0	2
14	11	0	4
15	13	0	2
16	14	0	1
17	13	0	2
18	10	1	4
19	12	0	3
20	10	0	5
21	11	3	1

against participants when the tests were re-scored using the new dialect sensitive scoring key, thus improving the participants' scores.

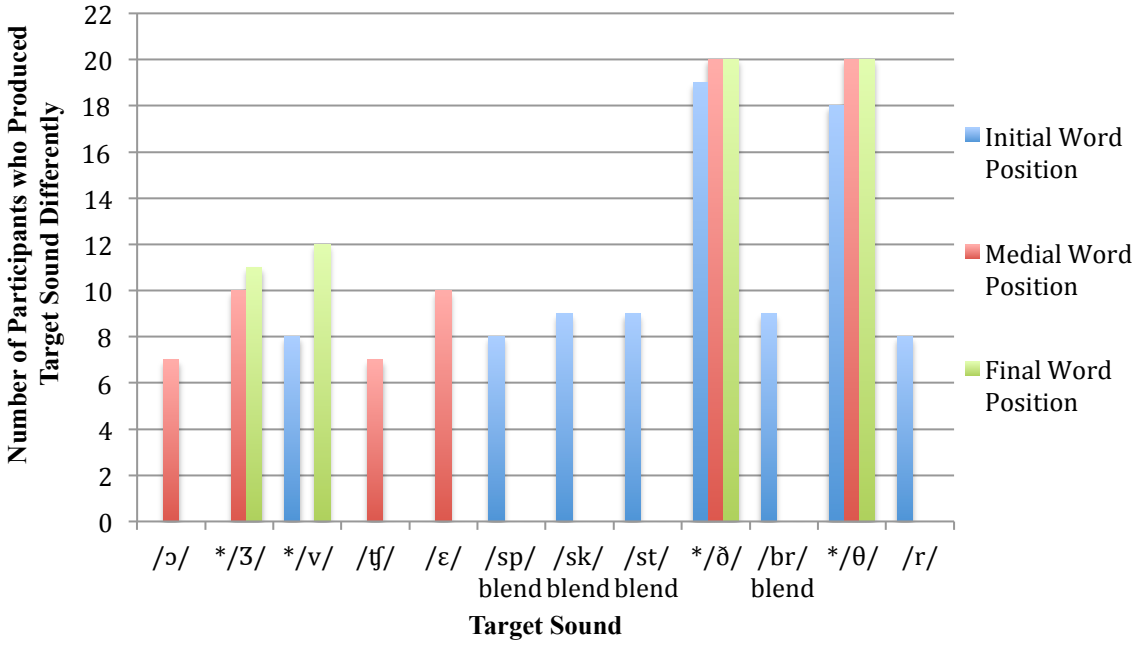
Articulation Test Results

Figures 1a and 1b show sounds produced differently by seven or more participants (30%) on the Arizona-3, followed by sounds produced differently by seven or more participants (30%) on the PAT-3. Sixty two percent of these sounds produced differently on the Arizona-3 were forgiven when the test was re-scored using the new dialect sensitive scoring key, whereas 55% of these sounds produced differently on the PAT-3 were later forgiven when re-scored.



*Denotes sound produced differently in AAE

Figure 1a. Sounds Produced Differently by More Than Seven Participants (30%) on the Arizona-3



Denotes sound produced differently in AAE

Figure 1b. Sounds Produced Differently by More Than Seven Participants (30%) on the PAT-3

Table 4 summarizes the study's findings, showing two separate scores per participant for both the Arizona-3 and PAT-3. The first score in each category, referred to as the initial standard score, is the original score calculated following the scoring instructions in each respective test's manual. The second score presented is the dialect sensitive (DS) standard score, or the score calculated by the researcher after determining which test items could be produced differently in AAE. Participants who scored outside of the normal limits and were eligible to be diagnosed with an articulation disorder are noted with an asterisk.

Figure 2 presents mean data for results on both the Arizon-3 and PAT-3. As depicted, the average DS standard scores were higher than the average initial standard scores on both tests. The black lines designate the cut-off point at which scores on each test are classified as below average and possibly imply speech or language delays or disorders.

Figures 3a and 3b represent the participants whose initial standard score fell below average on the Arizona-3 and PAT-3. Both the initial standard scores and DS standard scores are reported in the figures. A black line is drawn on each figure to depict the cut-off point between average and below average. On the Arizona-3, all scores at or below 85 are considered below average because they fall one standard deviation below the mean (mean=100, standard deviation=15). On the PAT-3 however, below average scores begin at or below 89, a few points above one standard deviation below the mean (mean=100, standard deviation=15). All participant's DS standard scores returned to the average score range on the Arizona-3, but three participant's DS standard scores on the PAT-3 fell right at or just under the below average mark.

Table 4. Participant's Initial Standard Scores and DS Standard Scores on the Arizona-3 and the PAT-3

		Arizona-3			PAT-3		
Participant	**Age**	**Initial Standard Score**	**DS Standard Score**	**Score Difference**	**Initial Standard Score**	**DS Standard Score**	**Score Difference**
1	4:10:6	*84	91	7	104	119	15
2	4:11:5	87	96	9	*78	*89	11
3	4:8:10	88	99	11	103	111	8
4	4:5:28	87	97	10	92	103	11
5	4:3:10	*85	102	17	106	119	13
6	4:0:17	*84	93	9	*76	*89	13
7	4:0:0	88	100	12	94	106	12
8	4:6:9	*76	94	18	*69	90	21
9	4:2:4	100	105	5	108	114	6
10	4:11:1	91	103	12	*89	106	17
11	4:6:26	*82	97	15	94	109	15
12	4:9:12	102	109	7	106	107	1
13	4:3:2	*81	90	9	*85	96	11
14	4:9:25	91	99	8	*89	98	9
15	4:2:27	93	106	13	92	100	8
16	4:9:1	97	106	9	110	121	11
17	4:1:21	87	96	9	99	110	11
18	4:0:26	96	105	9	106	114	8
19	4:7:23	*81	90	9	*66	*83	17
20	4:3:3	87	103	16	106	119	13
21	4:3:29	96	102	6	112	122	10
	Mean:	89	99	10	94	106	11

* Score denotes possible articulation impairment

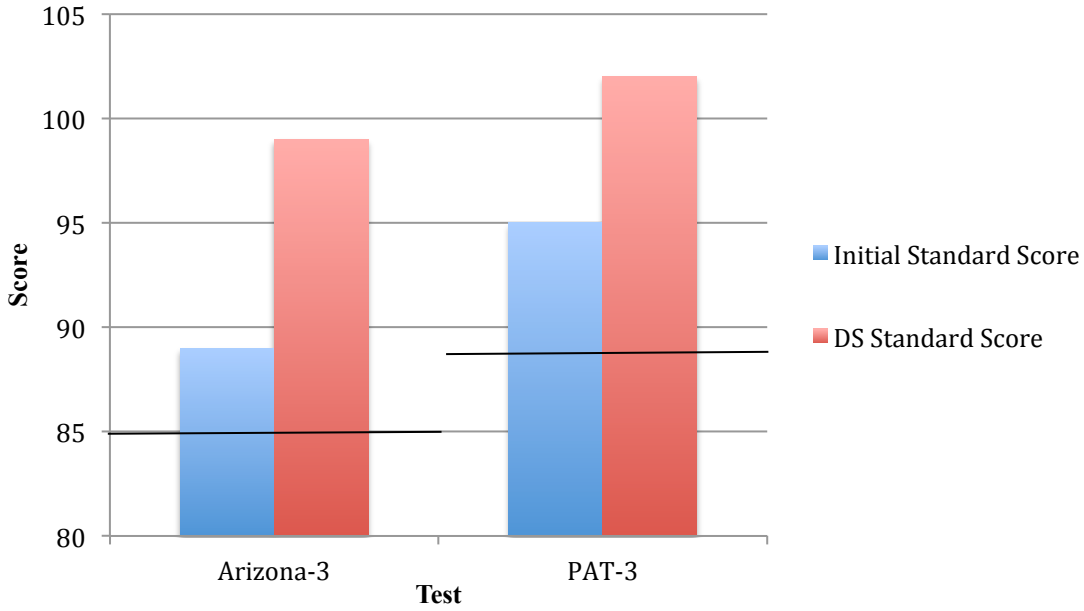


Figure 2. Comparison of Mean Scores on the Arizona-3 and the PAT-3

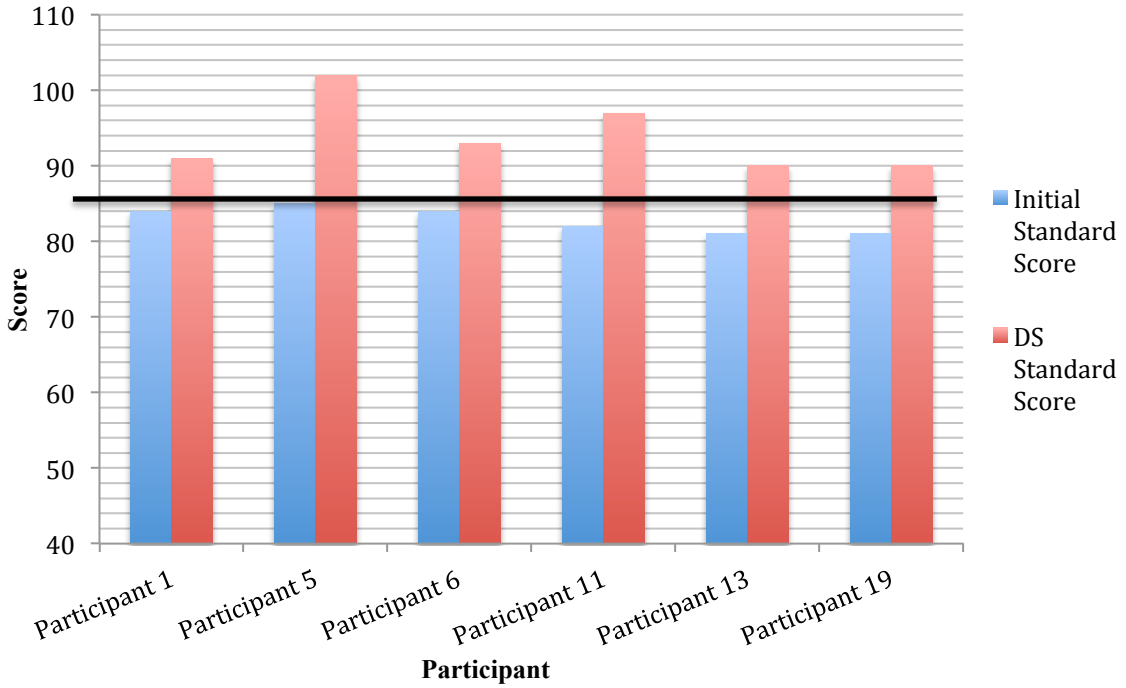


Figure 3a. Participants Scoring Below Average on the Ariona-3

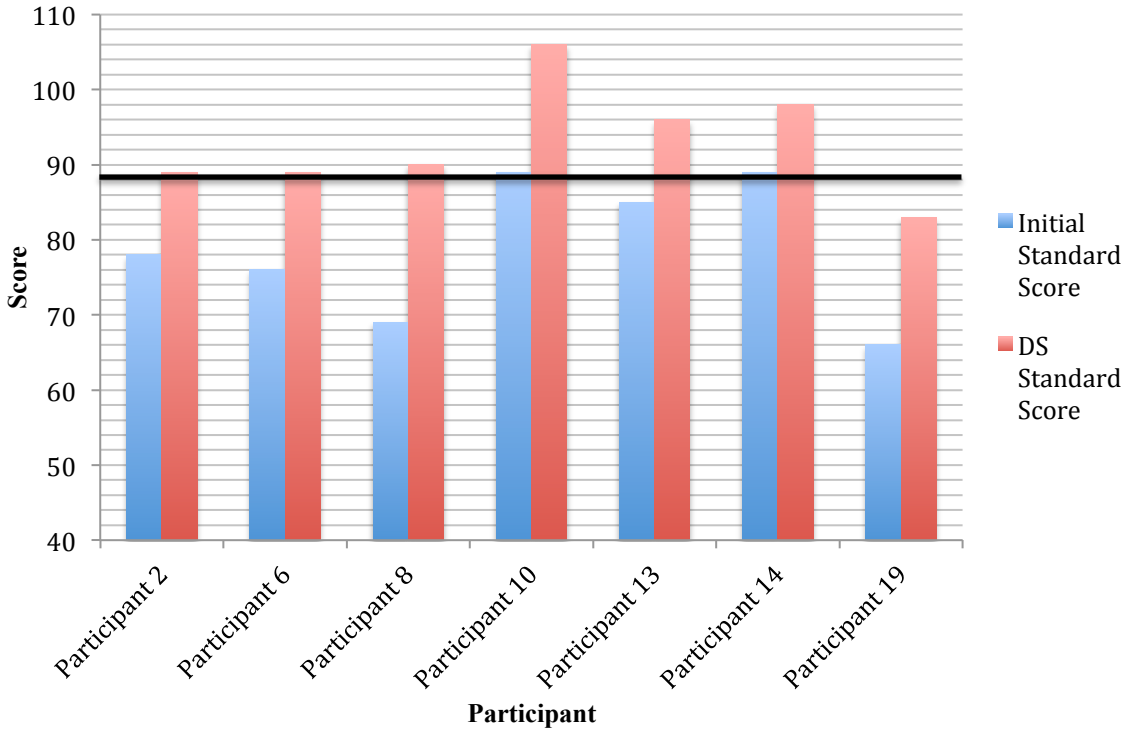


Figure 3b. Participants Scoring Below Average on the PAT-3

Concerning the picture content on the Arizona-3 and the PAT-3, most items were identifiable by the four-year-old AA participants. On the Arizona-3, only one of the 42 pictures was misidentified or unidentifiable by more than 20% of participants. The one commonly misidentified picture card illustrated an outdated stove; seven participants either had no response to this card, or called the item a "kitchen". On the PAT-3, 17 of the 70 pictures (24% of the test content) were either misidentified or unidentifiable by more than 20% of participants and a response had to be modeled by the clinician. . The most commonly mistaken pictures were: construction nails, statues of angels, a pack of matches, a saw, and an outdated radio. The picture of nails was identified as a "hammer" or unidentifiable by 15 participants, the angels were sometimes called "statues" or were unidentifiable by 16 of the participants, the matches were misidentified as "smokes" or

"fire" by 12 of the participants, the saw was unidentifiable by 12 participants, and eight participants called the radio a "TV".

CHAPTER V

Discussion

Summary

The purpose of this study was document the performance of four-year-old AAE speakers for their use of age appropriate phonemes and phonological processes regardless of dialect, and to determine if the presence of AAE affects participants' scores on the Arizona-3 and the PAT-3 standardized articulation tests. This study was a replication of Cole and Taylor's study in 1990, seeking to compare results and update data to discover if these two standardized tests have increased validity in minority populations over the last 25 years. Overall, the results showed that fewer AA participants scored below average on the Arizona-3 and the PAT-3 when the articulation tests were re-scored using a new dialect sensitive scoring key developed to take AAE dialectal characteristics into consideration. The results found in this study closely resemble results obtained by Cole and Taylor when examining participants from the same geographic location in 1990.

The current study set out to answer the following research questions:

1. Are the phonetic inventories of four-year-old AAE speaking preschoolers in north Mississippi consistent with the developmental norms reported on the Arizona-3 and the PAT-3?
2. Are the participants' scores similar on the Arizona-3 and PAT-3 when AAE is taken into consideration when scoring the tests, and when AAE is not considered?

3. How do the results from the Arizona-3 and PAT-3 of the current study compare to the results from Cole and Taylor's study (1990)?
4. Are the pictures from the Arizona-3 and PAT-3 biased against four-year-old AA children?

General Discussion

In regards to the first research question, the phonetic inventories of the 21 four-year old participants mirrored the age expectations on the Arizona-3 and PAT-3. The following sound errors should be mastered before age four and were present in more than 20% of the participants on the Arizona-3: substitution of /aʊ/ for /ɔ/ vowel sound, substitution of /eI/ for /ɛ/ vowel sound, and omission of final /d/ sound. Although both vowel sounds regarded as misarticulated by the Arizona-3 test's manual could be characteristic of the Southern White English (SWE) dialect, those sound substitutions have not been accepted nationally as characteristic of the AAE dialect. However, clinician's in the southeast United States should note the possible existence and appropriateness of these vowel substitutions. The omission of final consonants, such as the final /d/ sound, is in accordance with AAE dialectal rules, and therefore may need to be scaffolded by teachers in an academic setting before they develop in AA children's speech (Ivy & Masterson, 2007). Clinicians may be mildly concerned about the absence of the following sounds, which should develop at the end of the child's fourth year: substitution of /n/ for final /-ing/ sound, and substitution of /l/ for the initial /y/ sound. The substitution of /n/ for the final /-ing/ sound is characteristic of both AAE and SWE dialects, but the initial /y/ sound should be expected to develop in these participant's speech soon.

The only sounds absent from participant's speech repertoire on the PAT-3 that should be mastered before age four in more than 20% of the participants are as follows: omission of the final /d/ sound, and substitution of /aʊ/ for /ɔ/ vowel sound. Omitting final consonants, such as the /d/ sound, is consistent with the AAE dialect and therefore may need to be scaffolded by teachers in an academic setting before they develop in AA children's speech (Ivy & Masterson, 2007). The substitution of /aʊ/ for /ɔ/ vowel sound is characteristic of the Southern White English dialect (SWE), so the error may be regional. Clinicians may be mildly concerned about the absence of the following sounds, which should develop at the end of the child's fourth year: omission of the final /t/ sound, and omission or substitution of /s/ for the final /f/ sound. The omission of final consonants is characteristic of the AAE dialect and therefore may need to be scaffolded by teachers in an academic setting before they develop in AA children's speech. Substitution of the /s/ sound for the /f/ sound is not a pattern found in AAE and should be developing soon.

In response to the second research question, the participants' scores varied considerably on both the Arizona-3 and PAT-3 when they were re-scored using an new dialect sensitive scoring key developed to take AAE dialectal characteristics into consideration, yielding the dialect sensitive (DS) standard score. On average, participant's DS standard scores were 10 points higher than the initial standard score on the Arizona-3, and 11 points higher than the initial standard scores on the PAT-3.

Fourteen of the 21 participants scored within the average range on the Arizona-3 based on the score intervals provided in the test manual, six in the mild range, one in the moderate range, and none in the severe range category. The mean initial standard score on the Arizona-3 was 89. On the PAT-3, 14 of the 21 participants scored within the

average range, three within the below average range, two in the poor range, and two in the very poor range category. The mean initial standard score on the PAT-3 was 94. However, when DS standard scores were assigned, all 21 participants received average scores on the Arizona-3 with none falling below one standard deviation of the mean (a standard score at or below 85). Eighteen of the 21 participants scored within the average range on the PAT-3, three in the below average range, and none in the poor or very poor range categories.

Several differences in the two articulation tests are worth noting. The Arizona-3 tests for initial and final consonants, blends, vowels and diphthongs, but does not test sounds in the medial position of words. The words chosen to elicit certain sounds differed from the PAT-3, rendering the Arizona-3 more biased against speakers of AAE and SWE. For example, the use of the word "jumping" to elicit the /-ing/ sound may be considered biased because it is produced differently in AAE as well as SWE compared to MAE. The /-ing/ sound is reduced to /-n/ in both dialects, and therefore the word "jumping" can be expected to be produced as "jumpin" by both speakers of AAE and SWE. In contrast, the PAT-3 elicited the /-ing/ sound using the words "hanger" and "swing".

The Arizona-3 uses 100 as the mean and a standard deviation of 15, so mildly impaired speech scores begin at 85 and descend from there. In contrast from the PAT-3, each sound does not carry a consistent score value of one. Instead, the score for each individual sound is based on the frequency that sound appears in spoken English, therefore producing a score that should mirror the child's level of intelligibility. The test utilized scores from 5,500 children residing in 20 states (did not specify which ones),

with 70.7% White and 13.6% African American. 31.9% of the children resided in the south, which is marginally below the actual amount of the United States population living in the south at 35.1%. In contrast from the PAT-3, the Arizona-3 states in the user's manual that the "normal sample is adequate and supports the use of the test with all children, regardless of ethnic background (p. 35)".

The PAT-3 uses a mean of 100 and a standard deviation of 15, but begins considering scores at or below 89 as "below average", which is not common considering the typical standard deviation of 15 would allow scores to be considered average until they fell at or below 85. Two of the three participants in the below average category according to the initial standard scoring procedure scored between 86-89, and would be considered average on many other standardized tests. Adding the number of sounds misarticulated and subtracting that number from 100 calculated the scores. The most useful score is the standard score because it most accurately compares how the child performed in relation to his or her same aged peers. The representative population used to create the normative scores included 800 public and private school children from 24 states, excluding Mississippi. 77% of the children were White, while 19% were AA.

In response to the third research question, the results from the current study are more comparable to Cole and Taylor's (1990) results representing AAE speakers from Mississippi than Washington and Craig's (1992) results using speakers of AAE from Michigan. Cole and Taylor found that the mean score on the AAPS was 90.0, but rose to 96.95 when re-scored considering the possibility of different sound production in AAE compared to MAE. Seven of the 10 participants met the test's criteria for an articulation disorder based on the first raw score, while none met the criteria when the tests were re-

scored considering AAE dialectal characteristics. The mean number of errors on the PAT was reduced from 5.2 to 2.3 when the tests were re-scored, and the number of children who met criteria for an articulation disorder decreased from three to one.

In response to the fourth research question, there were a considerable amount of items on the two articulation tests that were either misidentified by the participants or unidentifiable. The only picture out of the 42 line drawings utilized on the Arizona-3 that was misidentified or unidentifiable by more than 20% of participants was the drawing of an outdated stove. The manual claimed that since the last revision, "the current set of Picture Cards also reflects increased ethnic diversity (p.33)". The picture choices on the Arizona-3 were more identifiable by 4-year-old children than the pictures chosen for use on the PAT-3. Seventeen of the 70 color photographs used on the PAT-3 were either misidentified or unidentifiable by more than 20% of participants, and a response had to be modeled by the clinician. The most commonly mistaken pictures were: construction nails, statues of angels, a pack of matches, a saw, and an outdated radio. The most likely cause for these misidentifications is outdated or unclear pictures, or the item is uncommon and the four-year-old child has not had much experience with yet.

When the child was unable to produce the correct name for the object on the picture card independently, the examiner identified the item and asked the child to say the correct word. Although not observed in this study, children can be inclined to articulate a word in the same manner as the examiner, as opposed to how they would pronounce the word naturally without a model. This imitation can pose problems when the clinician and child speak different dialects or native languages, possibly rendering the results of the articulation test inaccurate. However, according to Peña-Brooks and Hegde (2007),

studies have found minimal differences in word production when names of picture cards are elicited spontaneously in children and when elicited through examiner imitation (Paynter & Bumpas, 1977; Templin, 1947).

Limitations and Future Research

Although this study rendered valuable results, there are possible limitations. The only population tested was pulled from Learner's Playhouse Preschool, which is predominantly AA. To see if these results are truly representative of the AA population, children from other preschools who come in contact with White teachers, staff, or other classmates during their academic school day could be tested. To further solidify this data, it would be necessary to establish an interjudge reliability score.

To take this research further, the Diagnostic Evaluation of Language Variation- Norm Referenced (DELV-NR) test could be administered to the children. The DELV-NR was created primarily with AA children in mind; aiming to defuse the effects dialect can have on participant's language test scores. The assessment examines syntax, pragmatics, semantics, and phonological performance in a 45-minute comprehensive test for children aged four through nine (De Villiers, et al., 2003; Stockman, 2010). The results from the DELV-NR could be compared to results from the Arizona-3 and PAT-3 to further judge if the participant's speech is age appropriate. Because of time restraints, the current study was unable to take the research to the next level.

Conclusions

In conclusion, the Arizona-3 and PAT-3 articulation tests are reliable and valid overall. They have existed for decades, and made revisions over time to stay current. As this study illustrated, participants' scores differed when characteristics of AAE speech

were considered. This information is important for clinicians to note when evaluating an AA child before making a diagnosis. The test manuals should indicate the possible different results when testing speakers of AAE to draw examiner's attention to potential dialectal differences affecting the child's score. However, it is not recommended to completely rescore and discount a child's initial standard score assigned by the test's manual. Instead, clinician's should be aware of the number of misarticulations due to dialect and decide whether a child's low score is based solely on a dialectal difference, or if the mistakes are representative of an overall speech or language impairment.

An articulation evaluation using any empirically supported assessment test can be useful in identifying children as speakers of AAE based on their phonetic inventory. Identifying children as speakers of AAE is the first step to prompting dialect shifting. A close relationship between the SLP and classroom teacher is imperative to discuss standardized test scores, and devise a plan to increase awareness of the difference between AAE used as a "home language" and the use of MAE while at school. Studies show that children who consistently dialect shift in an academic setting have higher reading test scores. The relationship between phonology, reading, and writing is vital; failure to dialect shift at school can overcomplicate the learning process and create mismatches when children first learn sound correspondences between letters and their oral counterparts, potentially contributing to the Black-White achievement gap.

To help counteract the root of this problem, teachers should be properly educated to detect characteristics of different dialects in order to identify these speakers within the classroom, and work to scaffold dialect shifting while at school. The ability to switch from AAE to MAE in appropriate situations, including academic settings, can be

beneficial to the child's overall scholastic success. As Ivy and Masterson (2011) found, teachers should consider these dialect differences when developing lesson plans, especially for literacy instruction where young AAE speakers have the most difficulty.

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APPENDICES

Appendix A
IRB Approval Letter

THE UNIVERSITY of MISSISSIPPI

7/30/2014

Emily Ortega
Communicative Sciences
University, MS 38677

Dr. Lennette Ivy
Communicative Sciences
University, MS 38677

IRB Protocol #: **14-051**
Title of Study: **The Validity of Standardized Articulation Test Performance of African American Preschoolers in Mississippi**
Approval Date: **07-30-14**
Expiration Date: **07-29-15**

Dear Ms. Ortega:

This is to inform you that your application to conduct research with human participants has been reviewed by the Institutional Review Board (IRB) at The University of Mississippi and approved **as Expedited under 45 CFR 46.110, Category 7, 46.404.**

Research investigators must protect the rights and welfare of human research participants and comply with all applicable provisions of The University of Mississippi's Federalwide Assurance 00008602. Your obligations, by law and by University policy, include:

- Research must be conducted exactly as specified in the protocol that was approved by the IRB.
- Changes to the protocol or its related consent document must be approved by the IRB prior to implementation except where necessary to eliminate apparent immediate hazards to participants.
- **Only the approved, stamped consent form may be used throughout the duration of this research unless otherwise approved by the IRB.**
- A copy of the IRB-approved informed consent document must be provided to each participant at the time of consent, unless the IRB has specifically waived this requirement.
- Adverse events and/or any other unanticipated problems involving risks to participants or others must be reported promptly to the IRB.
- Signed consent documents and other records related to the research must be retained in a secure location for at least three years after completion of the research.
- Submission and *approval* of the *Progress Report* must occur before continuing your study beyond the expiration date above.
- The IRB protocol number and the study title should be included in any electronic or written correspondence.

If you have any questions, please feel free to contact the IRB at (662) 915-7482 or irb@olemiss.edu.

Sincerely,

Jennifer Caldwell, Ph.D.
Senior Research Compliance Specialist

Appendix B
Approved Consent Letter for Parents of Participants

The University of Mississippi
Institutional Review Board
Protocol # 14-051
Approval date 7-30-14
Expiration date 7-29-15
Signature [signature]

Parental Consent Form

Consent to Participate in an Experimental Study

Title: The Validity of Standardized Articulation Test Performance of African American Preschoolers in Mississippi

Investigator
Emily Ortega, Undergraduate Student
Department of Communicative Sciences and Disorders
P.O. Box 1844
The University of Mississippi
(417) 894-7514

Advisor
Lennette Ivy, Faculty, Ph.D.
Department of Communicative Sciences and Disorders
302 George Hall
The University of Mississippi
(662) 915-5130

Description
We want to conduct a study comparing three different measures used to assess the way children speak. In order to obtain data, we are asking your child to take part in three short assessments. Each assessment includes pictures that we will ask your child to identify, targeting different parts of speech. All three assessments have different scoring methods, and we want to specifically compare the results of these assessments from children who are speakers of African American English (AAE). For your information, the names of the evaluations are as follows:

- Diagnostic Evaluation of Language Variation (DELV) Screening Test
- Arizona Articulation Proficiency Scale: Third Edition (AAPS)
- Photo Articulation Test (PAT)

It will take about 35 minutes to complete all three evaluations. The sessions will be videotaped in case later review of your child's session is necessary; the videotapes will be kept confidential in a locked drawer at all times and may only be viewed by the undergraduate researcher, Emily Ortega, as well as the Faculty member, Dr. Lennette Ivy. On the last page of this packet, we request that you fill out a short personal questionnaire in order to help us better evaluate and group the data we collect. Your answers to those questions will also be kept confidential.

Risks and Benefits
There are no potential risks or benefits to your child connected to participation in this research.

Cost and Payments
The tests will take about 35 minutes to finish. There are no other costs for helping us with this study.

Confidentiality
Confidentiality will be maintained by immediately assigning your child a number. All

subsequent data obtained will only be identifiable by your child's number and not by your child's name. Data will be secured in a locked filing cabinet.

Right to Withdraw
Your child does not have to take part in this study. You may withdraw your child from this study at any time. Your child may decide they no longer want to participate, and withdraw themselves at any time. The researchers may terminate your child's participation in the study; for example, if results show that your child is not a speaker of AAE in order to protect the integrity of the research data.

IRB Approval
This study has been reviewed by The University of Mississippi's Institutional Review Board (IRB). The IRB has determined that this study fulfills the human research subject protections obligations required by state and federal law and University policies. If you have any questions, concerns, or reports regarding your rights as a participant of research, please contact the IRB at (662) 915-7482.

Statement of Consent
I have read the above information. I have been given a copy of this form. I have had an opportunity to ask questions, and I have received answers. I consent to participate in the study.

Name of Child Participant Date of Birth

Signature of Parent/Guardian Date

Signature of Investigator Date

NOTE TO PARTICIPANTS: DO NOT SIGN THIS FORM
IF THE IRB APPROVAL STAMP ON THE FIRST PAGE HAS EXPIRED.

Appendix C
Personal Information Questionnaire

Personal Information Questionnaire

For this section, check the space that most accurately describes your situation.

Gender
_____ Male
_____ Female

Marital Status
____ Single
____ Married

If married:
_____ Both spouses gainfully employed
_____ One spouse gainfully employed
_____ Neither spouse gainfully employed at this time
*** See next page to fill out spouses information***

For family with single parent:
_____Never been married
_____Divorced
_____Widowed
*** If single, you may leave the next page blank ***

If divorced, do you receive child support?
____ Yes
____ No

Level of School Completed
_____ Less than 7th grade
_____ Partial High School
_____ High School Graduate
_____ Partial College
_____ Standard College or University Graduation
_____ Graduate Degree or further

Occupation
_____Unemployed
_____ Employed

If employed, what is your job title and description?

_____

_____

Spouses Personal Information

Gender

_____ Male
_____ Female

Level of School Completed

_____ Less than 7th grade
_____ Partial High School
_____ High School Graduate
_____ Partial College
_____ Standard College or University Graduation
_____ Graduate Degree or further

Occupation

_____Unemployed
_____ Employed

If employed, what is your job title and description?

_____

_____